

IN THE CLAIMS:

A listing of the status of all claims 1-29 in the present patent application is provided below.

1. (Previously Presented) A storage management system for backing up a storage system comprising a plurality of units of storage, the storage management system comprising:

at least one current store representing a current state of the storage system; and

at least one time store;

wherein the storage management system automatically records information associated with all write commands directed to the plurality of units of storage, each write command comprising an instruction to overwrite at least one of the plurality of units of storage with new data;

wherein the storage management system copies, prior to overwriting the at least one unit of storage, old data present at the at least one unit of storage into the at least one time store, wherein the old data is timestamped, thereby continuously indexing by timestamp old data to be overwritten with new data prior to execution of each write command; and

wherein the storage management system is further configured to identify old data that were present in a specified portion of

the plurality of units of storage during a specified time prior to being overwritten based at least in part on the timestamp.

2. (Previously Presented) The storage management system of claim 1, wherein the storage system further comprises one or more physical storage devices on which data of the storage system is stored.

3. (Previously Presented) The storage management system of claim 2, wherein an address for accessing the storage system comprises a device identifier and a location identifier.

4. (Previously Presented) The storage management system of claim 3, wherein the device identifier identifies a physical storage device.

5. (Previously Presented) The storage management system of claim 3, wherein the device identifier identifies a logical device.

6. (Currently Amended) The storage management system of claim 1, wherein data of the storage system can be accessed by specifying an address and a given time, and wherein the given time specifies that the data retrieved from the address is the most

recent data that was written to the address at or before the given time.

7. (Currently Amended) The storage management system of claim 6, wherein the given time is explicitly specified in a request to access a unit of storage.

8. (Currently Amended) The storage management system of claim 6, wherein the given time is specified in a command to the storage system separate from a request to read a unit of storage.

9. (Currently Amended) The storage management system of claim 6, wherein the storage management system creates a virtual device, wherein the given time is specified when the virtual device is created, and is applied when the virtual device is accessed.

10. (Currently Amended) The storage management system of claim 9, wherein new data is written to the virtual device without overwriting data that was written to the storage system after the given time specified when the virtual device was created.

11. (Currently Amended) The storage management system of claim 6, wherein a command to the storage system specifies that the

given time is implicitly a current time.

12. (Currently Amended) The storage management system of claim 6, wherein the given time is specified relative to a current time.

13. (Previously Presented) The storage management system of claim 1, wherein the units of storage are blocks.

14. (Currently Amended) A method for backing up a storage system having a plurality of units of storage, the method comprising:

recording, automatically, information associated with all write commands directed to the storage system, wherein each write command comprises an instruction to overwrite at least one of the plurality of units of storage with new data;

copying, prior to overwriting the at least one unit of storage, old data present at the at least one unit of storage into a time store, wherein a record of the old data is timestamped, thereby continuously indexing by timestamp old data to be overwritten with new data prior to execution of each write command; and

identifying old data that were present in a specified

portion of the plurality of units of storage during a specified time ~~period~~ prior to being overwritten based at least in part on the timestamp, wherein the time store is identified as ~~the~~ a location of the old data if the old data was overwritten after the specified time, and the current store is identified as ~~the~~ a location of the old data if the old data was not overwritten after the specified time.

15. (Previously Presented) The method of claim 14, wherein an address for accessing the storage system comprises a device identifier and a location identifier.

16. (Previously Presented) The method of claim 14, wherein data of the storage system can be accessed by specifying an address and a time, and wherein the time specifies that the data retrieved from the address is the most recent data that was written to the address at or before the time.

17. (Currently Amended) The method of claim 16, wherein the specified time is explicitly specified in a request to access a unit of storage.

18. (Previously Presented) The method of claim 15, wherein the

storage management system creates a virtual device, wherein the time is specified when the virtual device is created, and is applied when the virtual device is accessed.

19. (Original) The method of claim 18, further comprising writing data to the virtual storage device.

20. (Previously Presented) The method of claim 14, wherein specifying the time comprises specifying the time relative to a current time.

21. (Previously Presented) An apparatus for storing data, the apparatus comprising:

a storage appliance that interfaces with a computer;
one or more physical storage devices that interface with the storage appliance, the one or more physical storage devices having a plurality of storage units, each such physical storage device controlled by the storage appliance;

wherein the storage appliance comprises at least one current store and at least one time store, the at least one current store maintaining a current mirror copy of digital content in the one or more physical storage devices, and

wherein, each time immediately before a storage unit is overwritten by write command with new data, any old data present at that storage unit is timestamped and stored in the at least one time store, thereby continuously indexing by timestamp old data to be overwritten with new data prior to execution of each write command; and

wherein the storage appliance is further configured to identify old data that were present in a specified portion of the plurality of units of storage during a specified time prior to being overwritten based at least in part on the timestamp stored in the at least one time store, wherein the time store is identified as the location if the data was overwritten after the specified time, and the current store is identified as the location if the data was not overwritten after the specified time.

22. (Previously Presented) The apparatus of claim 21, wherein data of the storage system can be accessed by specifying an address and a time, and wherein the time specifies that the data retrieved from the address is the most recent data that was written to the address at or before the time.

23. (Currently Amended) A computer readable medium having code

for causing a processor to control a storage system, the storage system comprising a plurality of units of storage, the computer readable medium comprising:

code adapted to automatically record information associated with all write commands issued to the storage system, wherein each write command comprises an instruction to overwrite at least one of the plurality of units of storage with new data; and

code adapted to copy, prior to overwriting the at least one unit of storage, old data present at the at least one unit of storage into a time store, wherein a record of the old data is timestamped, thereby continuously indexing by timestamp old data to be overwritten with new data prior to execution of each write command; and

code adapted to identify old data that were present in a specified portion of the plurality of units of storage during a specified time period prior to being overwritten based at least in part on the timestamp.

24. (Previously Presented) The computer readable medium of claim 23, wherein data of the storage system can be accessed by specifying an address and a time, and wherein the time specifies that the data retrieved from the address is the most recent data

that was written to the address at or before the time.

25. (Currently Amended) The computer readable medium of claim 23, wherein the specified time period time is explicitly specified in a request to access a unit of storage.

26. (Previously Presented) The storage management system of claim 1, wherein the at least one current store maintains a current mirror copy of data stored in the plurality of units of storage, and wherein the at least one time store contains the old data and ~~the~~ a timestamped record of the old data.

27. (Previously Presented) The storage management system of claim 26, wherein, after the old data is copied to the at least one time store, the at least one unit of storage is overwritten with the new data, and the current mirror copy in the at least one current store is updated with the new data.

28. (Previously Presented) The method of claim 14, further comprising:

maintaining, in the current store, a current mirror copy of the content of the storage system; and

overwriting the at least one unit of storage with the new

data and updating the current mirror copy in the current store with the new data, wherein the overwriting and the updating occur after the old data is copied to the time store.

29. (Previously Presented) The computer readable medium of claim 23, further comprising:

code adapted to maintain, in a current store, a current mirror copy of the content of the storage system; and

code adapted to overwrite the at least one unit of storage with the new data and update the current mirror copy in the current store with the new data after the old data is copied to the time store.